



Applied Remote Sensing Training Program

<http://arset.gsfc.nasa.gov>

 @NASAARSET

Cindy Schmidt
BAERI/NASA Ames Research Center

NASA Wildland Fire Applications
2017 Team meeting
March 1, 2017

Capacity Building Program Elements



SERVIR: Building international capacity with hubs in East Africa, Hindu Kush-Himalaya, Mesoamerica, Southeast Asia



Applied Remote SEnsing Training, ARSET: Online and hands on basic/advanced training to build skills



DEVELOP: Dual workforce/local government capacity building using collaborative feasibility projects, internships

ARSET Training Formats

Online

- Offered through the internet
- Available live and recorded
- Typically 1 hr session, once per week, over 4-6 weeks
- Available at all training levels:
 - Fundamentals of Remote Sensing
 - Introductory
 - Advanced

In-Person

- 2-7 days in length
- Held in a computer lab
- Mixture of lectures and exercises
- Locally relevant case studies
- Available levels:
 - Introductory
 - Advanced

Train the Trainers

- Trainings and materials
- Offered online & in-person
- For organizers seeking to develop their own applied remote sensing training programs

ARSET Training Levels

Fundamentals, Level 0

- Online only
- Assumes no prior knowledge of remote sensing

Basic Training, Level 1

- Online and in-person
- Requires level 0 training or equivalent knowledge
- Specific applications

Advanced Training, Level 2

- Online and in-person
- Requires level 1 training or equivalent knowledge
- More in-depth or focused topics



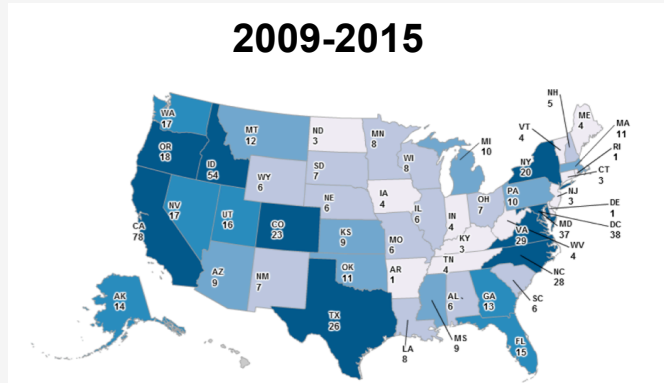
Fundamentals of Remote Sensing: Satellites, Sensors, Data, and Tools for Land Management & Wildfire Applications

Basic Training: Remote Sensing of Forest Cover and Change Assessment for Carbon Monitoring

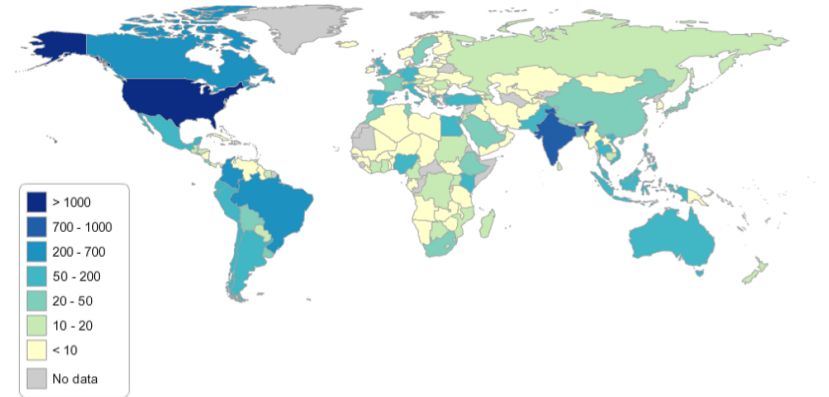
Advanced Training: Advanced Webinar: Land Cover Classification with Satellite Data

ARSET's Global Footprint

- 81 trainings
- 8,000+ participants
- 1,600+ organizations
- 140+ countries
- All 50 U.S. States



ARSET Participants by Country
2009 – 2016



ARSET Team

Program Support

Ana Prados, Program Manager (GSFC)

Brock Blevins, Training Coordinator (GSFC)

David Barbado, Spanish Translator (GSFC)

Annelise Carleton-Hug, Program Evaluator

Elizabeth Hook, Technical Writer/Editor (GSFC)

Marines Martins, Project Support (GSFC)

Disasters & Water Resources

Amita Mehta, Disasters Lead (GSFC)

Tim Stough, Water Lead (JPL)

Erika Podest, Instructor (JPL)

Land & Wildfires

Cynthia Schmidt, Lead (ARC)

Amber Jean McCullum, Instructor (ARC)

Sherry Palacios, Instructor (ARC)

Health & Air Quality

Pawan Gupta, Air Quality Lead (GSFC)

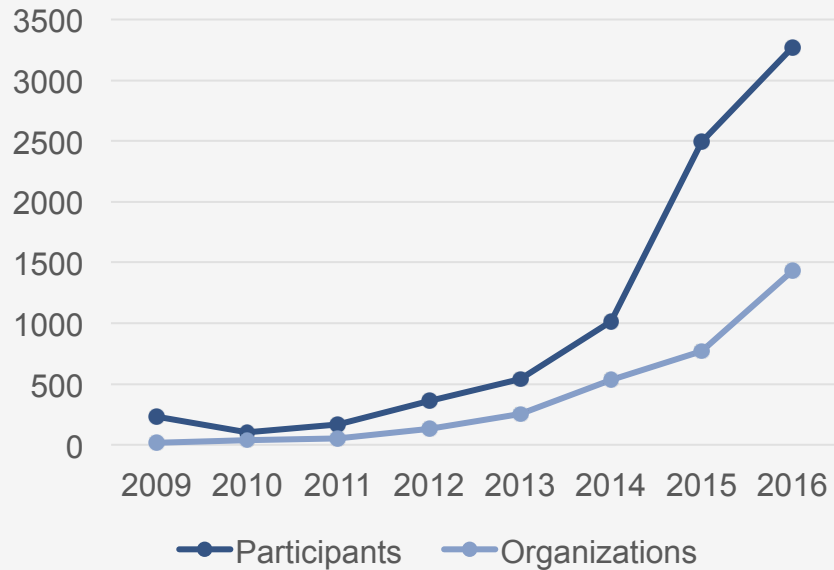
Melanie Cook, Instructor (GSFC)

Sue Estes, Health Lead (MSFC)

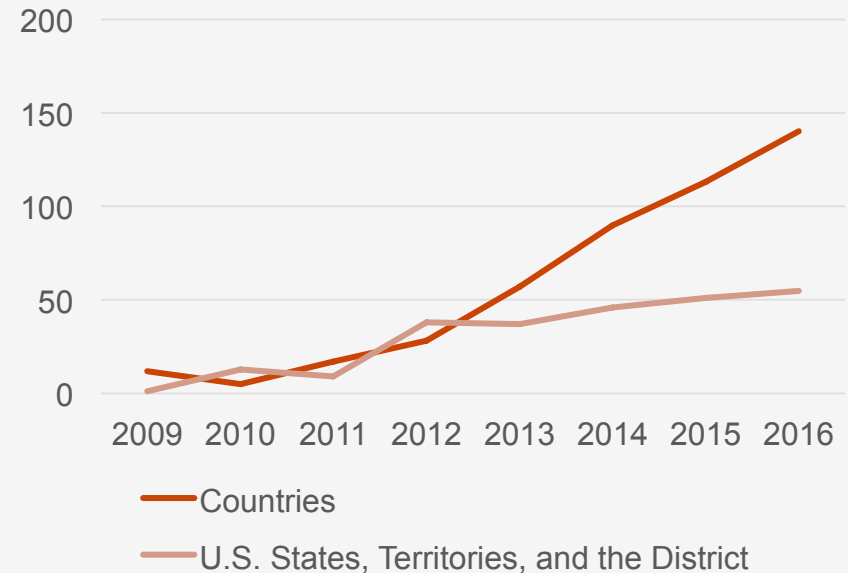


ARSET Growth

Participants & Organizations Over Time



Countries and U.S. States* Over Time



New Training Approaches

- Advanced/Technical:
 - 4-5 weeks with exercises (using web tools) and case study
 - 4 weeks with exercises using open source GIS software (NDVI)
 - 2 weeks with exercises using open source GIS software lasting 4 hours each session
- Introduction/Awareness:
 - Quick introductions on very specific topics or methods: 15-30 minutes (not done yet)

Extensive Post-Training Assessment

- ARSET Training Course Application Forms
- Interviews with key informants
- Informal feedback during webinar Q&A period
- Survey 1: completion of each training
- Surveys 2: 6 months post training; measures impact and changes in NASA data use

- Ad hoc interviews to collect “success stories”

How useful were the following training elements to help you improve your understanding of working with remote sensing data?

Table 5. Participant ratings of utility of various training elements. N = 52

Note: Green-shaded cells indicate a majority of respondents selected this response

	Not useful	Moderately useful	Extremely useful	N/A
Overview of fundamentals of remote sensing	1.92% 1	53.85% 28	44.23% 23	0.00% 0
Instruction on available web tools to visualize, access, and analyze data	0.00% 0	25.00% 13	73.08% 38	1.92% 1
Instruction on image pre-processing and processing	3.92% 2	27.45% 14	66.67% 34	1.96% 1
Examples and case studies of data applications	0.00% 0	26.92% 14	73.08% 38	0.00% 0
Hands-on exercises using online webtools	0.00% 0	21.15% 11	75.00% 39	3.85% 2

Wildfire trainings

- Introductory webinar, followed by in-person workshop, Boise, ID, October 2015
- 1-day workshop, International Smoke Symposium, November 2016
- Multiple hyperwall presentations, AGU (Dec. 2016); IUCN World Conservation Congress (Sept. 2016) – Ambrosia, Soja, Schmidt
- Upcoming: 1-day workshop, Fairbanks, Alaska, April 2017



*International Smoke Symposium,
Long Beach, CA*

Webinars and In-Person Trainings 2017 (partial list)

- **Advanced Webinar:** Land Cover Classification with Satellite Imagery, Jan 31-Feb. 7
- **Intro Webinar:** Overview of the Global Disaster and Coordination System, February 21
- **Intro Webinar:** Satellite Derived Annual PM2.5 Data Sets in Support of UN Sustainable Development Goals, March 15 – 29
- **In-Person Training:** Remote Sensing in Arctic/Boreal Wildfire Management and Science, April 3, Fairbanks, AK
- **In-Person Training:** NASA Remote Sensing for Flood Monitoring and Management, April 18-20, Fairfax, VA
- **In-Person Training:** Satellite Remote Sensing of Air Quality, May 23-26, India
- **Intro Webinar:** Remote Sensing of Drought, June 2017
- **Intro Webinar and In-Person Training:** Species Distribution Modeling, June and August 2017
- **In-Person Training:** Remote Sensing of Water Resources, August, Brazil

An aerial photograph of the Los Angeles basin. A large, semi-transparent purple rectangular area is overlaid on the map, covering most of the central and eastern parts of the basin. A red line follows the irregular edges of this purple area. The map shows various geographical features: the Antelope Valley in the northwest, the San Gabriel Mountains to the east, and the San Fernando Valley to the south. Major cities and towns are labeled, including Los Angeles, La Canada Flintridge, Altadena, Burbank, and Glendale. Major freeways are also shown, such as the Antelope Valley Fwy, Foothill Fwy, Golden State Fwy, and Ventura Fwy. The text "How can we help you? How can you help us?" is centered within the purple area, with a horizontal line underneath it.

How can we help you?
How can you help us?

Los Angeles

La Canada Flintridge

Altadena

Burbank

Sierra Madre

Monrovia Bradbury

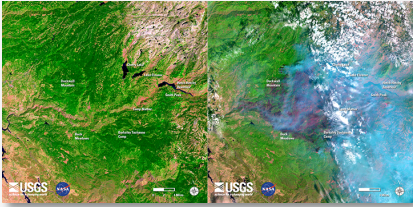
©2009

Google™

Introductory/Awareness Webinars

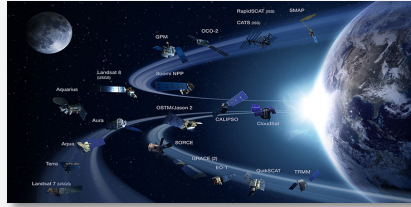
Remote Sensing for Wildfire Applications

Week 1



Overview of satellite remote sensing

Week 2



Platforms and sensors for wildfire applications

Week 3



Products for pre and post-wildfire

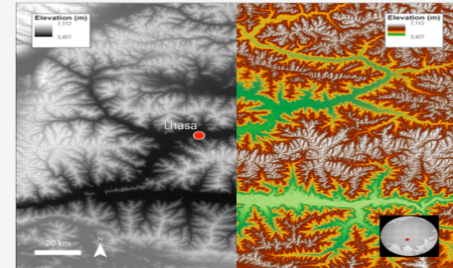
Week 4



New techniques and technologies

National Aeronautics and Space Administration

Week 5



Terrain data applications

Applied Remote Sensing Training Program

Targeted Workshops for Specific Communities: Remote Sensing for Boreal/Arctic Wildfire Management

Alaska Fire Science Consortium

A JFSP Knowledge Exchange Consortium

[AFSC Home](#)

[About](#) ▾

[Events](#) ▾

[Library](#) ▾

[Partner Groups](#) ▾

[Products & Tools](#) ▾

[Projects](#) ▾

[FRAMES Home](#)



[Alaska Fire Science Consortium](#) > [Events](#) > [Previous Events](#) > [Workshops](#) > 2017 RS workshop

Opportunities to Apply Remote Sensing in Boreal/Arctic Wildfire Management and Science

Training: April 3, 2017 at Alaska Fire Service

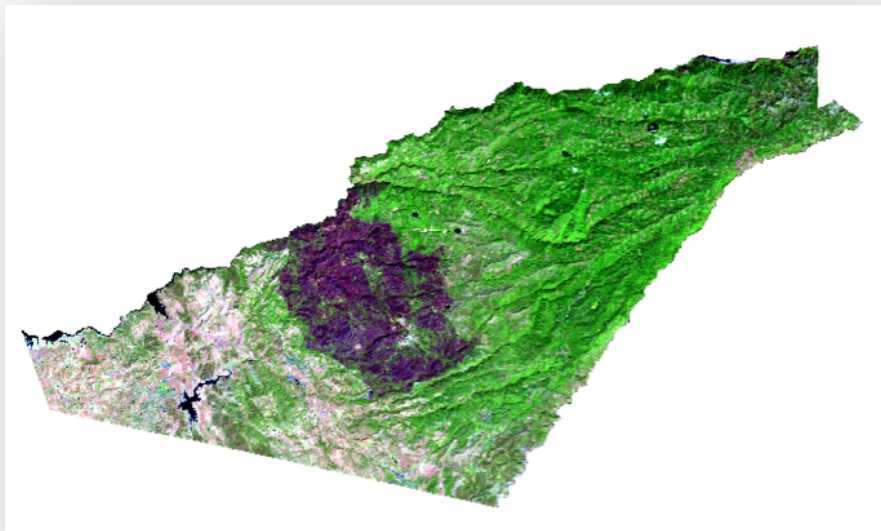
Workshop: April 4-6, 2017 at University of Alaska Fairbanks



Advanced Webinars in Specific Technical Areas: Land Cover Classification

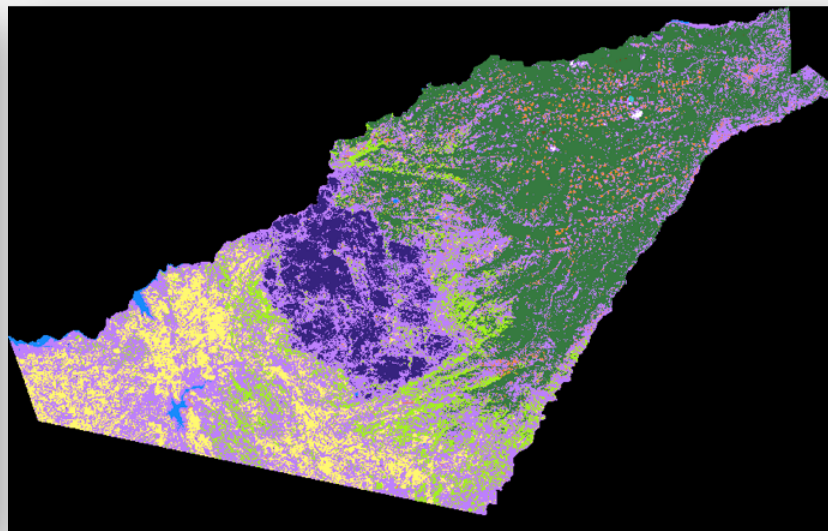
Week 1:

Introduction to Land Cover Classification




Week 2:


Improving a Supervised Classification





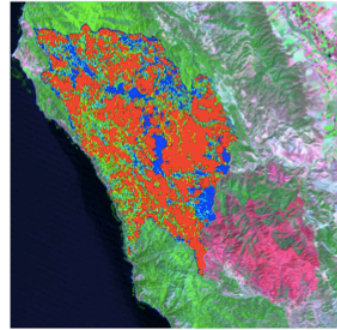



Be a Guest Speaker in one of our Webinars/Workshops



Postfire Mapping Support in the USDA Forest Service: Normalized Burn Ratios & RSAC's BAER Imagery Support program



Tony Guay
Remote Sensing Specialist
Forest Service Contractor
Remote Sensing Applications Center (RSAC)
p: 801-975-3763
f: 801-975-3478
tonyg@fs.fed.us
2222 West 2300 South
Salt Lake City, UT 84119
www.fs.fed.us
 
Caring for the land and serving people



USDA Forest Service, Remote Sensing Applications Center,
FSWeb: <http://fsweb.rsac.fs.fed.us>
WWW: <http://www.fs.fed.us/eng/rsac/>

RECOVER DSS

NASA RECOVER

ARSET Remote Sensing for Wildfire Applications webinar

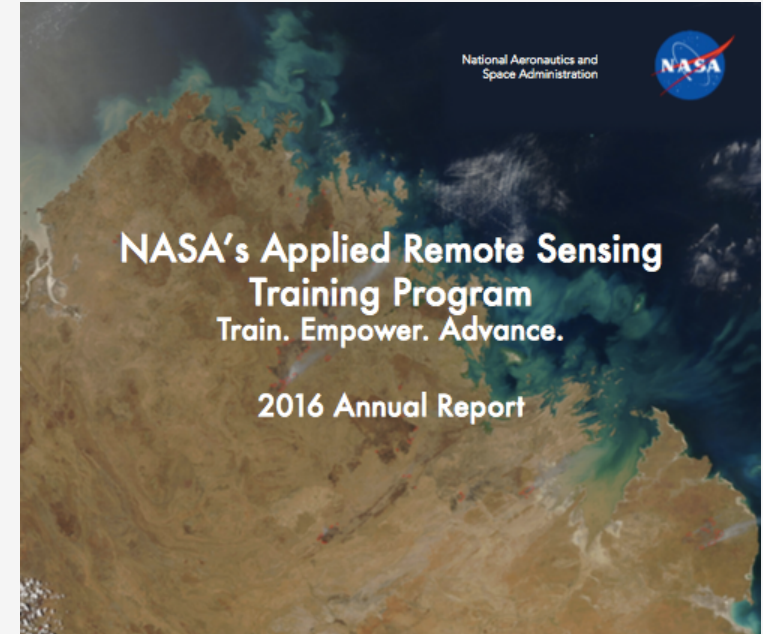
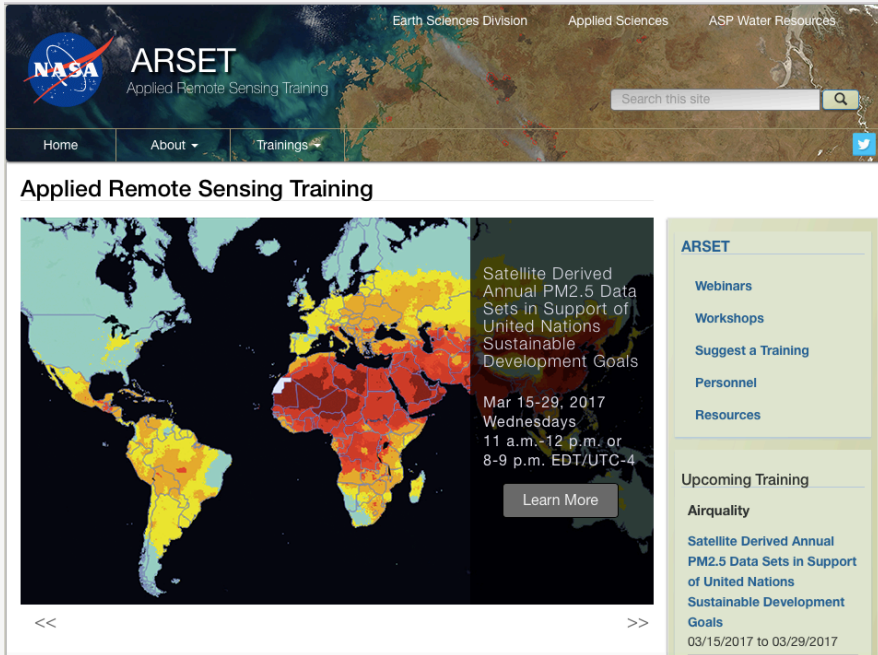


ARS Training and Research Center
Pocatello, Idaho
<http://grouper.ia.ri.edu>

Pocatello | Idaho Falls | Meridian | Twin Falls

Idaho State
UNIVERSITY

More Information



<http://arset.gsfc.nasa.gov>
Cynthia.L.Schmidt@nasa.gov